Attachment-6

CALIFORNIA PUBLIC UTILITIES COMMISSION

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ELECTRIC PROGRAM INVESTMENT CHARGE

DRAFT EPIC Strategic Objectives

May 2024

DISTRIBUTED ENERGY RESOURCE INTEGRATION

Initial Draft Strategic Objectives for the Electricity Program Investment Charge ("EPIC") Program for the 2026-2030 Investment Period. These Draft Strategic Objectives were developed by stakeholders participating in the California Public Utility Commission's ("CPUC") in-personal technical working group on April 30, 2024, in response to the process and Strategic Goals established by the CPUC in D.24-03-007.

How these Draft Strategic Objectives were developed

The Draft Strategic Objectives were developed through a multi-part process:

1. **Fall 2023: Strategic Goals Process.** The CPUC launched a Strategic Goals process for the EPIC program in August 2023, and facilitated stakeholder workshops to identify the priority state climate, equity, and energy goals that EPIC could work to support, exploring critical pathways to achieving those goals, identifying the obstacles, challenges, and gaps along those pathways, and discussing the key roles of entities responsible for overcoming those gaps. The output from that process was the development of a Staff proposal on Strategic Goals for the EPIC program, filed in November 2023.

2. **March 2024: Strategic Goals Adopted.** In March 2024, the CPUC adopted five strategic goals for the EPIC program in D.24-03-007 (Transportation Electrification, Building Decarbonization, Achieving 100% Net-Zero Carbon Emission and the Coordinated Role of Gas, Distributed Energy Resource Integration, and Climate Adaptation), and directed the establishment of a workshop process to establish Strategic Objectives for the EPIC program.

   Strategic Objectives are clear, measurable, and robust targets to guide EPIC investment plan strategies to scale and deploy innovation to align with EPIC's Strategic Goals that:

   a. Address the key gaps in critical pathways to achieving California's climate goals,

   b. Focus on the unique role ratepayer-funded research, development, and demonstration (RD&D) can play in leading innovation investment, and

   c. Consider important cross cutting principles identified in the decision, including equity, emerging strategies, and safety (including cybersecurity)

3. **March 2024: Strategic Objectives Process Launched.** The Strategic Objectives Workshop process kicked off on March 19, 2024 with a public workshop, and was followed by an April 2, 2024 workshop on developing an Impact Analysis Framework for the EPIC program.

4. **April 2024: Technical Working Group meetings begin.** Technical working groups for each strategic goal launch in April 2024, focused on initial development of Draft Strategic Objectives for the EPIC program.

5. **May - June 2024: Finalize Strategic Objectives for inclusion in CPUC Staff Proposal.** The included Draft Strategic Objectives below will be discussed as part of follow-up virtual technical working group meetings in May 2024, as well as in-person and virtual Workshops in June 2024. The ultimate product of this work is the development of a CPUC Staff Proposal on the Strategic Objectives to be included in a CPUC litigated proceeding.

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Distributed Energy Resource Integration

Strategic Goal: EPIC will invest in the cost-effective integration of high penetrations of distributed energy resources to support the state's goal to achieve a renewable and zero-carbon power sector by 2045, in part by building on the state's goal to deploy 7,000 megawatts of flexible load by 2030, by addressing identified gaps for this goal.

Identified Gaps:

Increasing Access to DER Benefits for SVCs	**Strengthening the Role of DERs for Grid Resiliency**	**Leveraging DER to reduce grid costs and improve reliability**	**Streamlining Interconnection and Communication**
Lack of opportunities for disadvantaged, low-income, ESJ, and tribal communities to engage early and directly benefit from deployment of flexible resources	An outsized burden that long-duration outages have on disadvantaged, low-income, ESJ, and tribal communities	Need to better understand the ability of aggregated DERS and VPP deployment to reduce or forestall the cost associated with grid upgrades, and to support grid reliability	Lack of uniform standards and protocols for interconnection, system design, visibility, and communication among grid-connected devices, including smart meters, smart inverters, and internet-of-things (IoT) technology
Customers in DVCs face trust, information, valuation, and infrastructure barriers to adoption of DERs and participation in grid services	Need for reliable and resilient power for communities and critical facilities during periods of power outages due to wildfire, extreme weather, and other emergency situations	Insufficient valuation, incomplete business models, and lack of appropriate market mechanisms for transmission and distribution grid services provided by flexible resources	Complex and demanding interconnection and permitting processes increase the costs and slow timelines for DER deployment
		Lack of comprehensive weather operational data to predict system conditions	High costs, low latency, and low cybersecurity safeguards for communication to and between DERs to support grid services strategies
		Lack of reliable, real-time, automated coordination of generation and load at the grid edge	Lack of low latency distribution system intelligence, data feed for actual dynamic capacity constraints, and real-time enablement for automation service providers including distribution grid services.
		Potential operational conflicts between leveraging the same DERs for grid services, resiliency, reducing energy bills, and transportation	

4.1 Role of DERs for Grid and Community Resiliency

Strategic Objective: The program will utilize and proactively deploy DERs to prevent grid outages, and make outages invisible for critical load by 2035.

The Strategic Objective will take into consideration:

- Critical load must be identified by and will be unique to individual communities;
- Critical load intends to serve a community and is not just critical facilities;
- Bandwidth constraints of communities;
- Already existing incentives and programs such as tax credits, or the utility community microgrid program;
- Technology costs and affordability for the community and ratepayers;
- The need to collaborate with multiple stakeholders including communities, utilities, developers, and industry;
- Communities have varying threats and climate risks;
- DERS are susceptible to cyberattacks; and
- Coordination with CPUC proceedings and processes such as the infrastructure deferral framework

The Strategic Objective will achieve a path to market through:

- Integrated bi-directional information exchange to optimize resiliency investments for communities, developers, and utilities; and
- Replicable and scalable model to make outages invisible for critical loads across various communities.

Success for the Strategic Objective will be measured through:

- Interruption Cost Estimate (ICE) Calculator 2.0;
- The number of outages mitigated;
- Duration (hours) of outages mitigated;
- The number of circuits that are proactively addressed;
- Percent of load and DERs identified as critical load that maintains during outage events;
- Amount of carbon intensive backup power replaced with DERs;
- Percent reduction of grid outages on specific circuits using DERs; and
- Operational and cost effectiveness of front of the meter (FTM) and behind the meter (BTM) solutions
- Social Burden Metric - Sandia's ReNCAT tool (or other novel and/or in-development metrics)

Targeted Questions for Stakeholders:

- **How can we best phrase the objective to ensure that the 'prevent grid outages' portion is measurable? Please suggest achievable targets or quantities that can be incorporated into the strategic objective.**

- **Are there other metrics either in use or in development that can be used to measure the success of this effort?**
- **Given the availability of various state and federal programs for DERs and microgrid deployments, does this strategic objective align with the appropriate use of EPIC funds? Can you identify any overlaps or gaps with existing initiatives?**
- **Given the ongoing initiatives and existing funding from federal, state, and industry sources, do you foresee the EPIC 5 funding cycle (2026-2030) making a significant impact on achieving this strategic objective?**
- **What other barriers do you see to the development of new technologies or processes to address in this objective?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**

4.2 Maximizing DER Impacts for DVCs

Strategic Objective: Ensure DER strategies make a measurable impact on pollution, energy burden, quality of life, health, resilience, and reliability by 2030-2035.

The Strategic Objective will take into consideration:

- The need for effective and respectful process in working with disadvantaged and vulnerable communities (DVCs), through:
- Focusing on multifamily housing, the grid edge, and constrained areas where overlap with DVCs is more prominent;
- Active engagement with the community;
- Recognition that communities want a sense of agency over programs;
- Considering the timing mismatch between EPIC projects and community needs and processes;
- Need to work with trusted messengers and researchers with cultural competence;
- Holistic and portfolio approaches to programs;
- Fact that community members may not realize that they are funding EPIC; and
- The need to use the communities' own definitions of "benefits."

The Strategic Objective will achieve a path to market through:

- Technology demonstrations
- Standards

Success for the Strategic Objective will be measured through:

- Progress on air quality nonattainment,
- Lower energy burdens in DVCs,
- Workforce availability and participation from DVC community members,
- Decreases in specific pollutant metrics in DVCs,
- Extent to which DVCs own priorities are reflected in decision-making,
- Improvements in health metrics in DVCs,
- Self-identified improvements in quality of life in DVCs, and
- Reductions in public safety power shutoffs, and other types of shutoffs, in DVCs.

Targeted Questions for Stakeholders:

- **Is the Strategic Objective appropriately stated? If not, what do you propose?**
- **What additional paths to widespread market adoption do you see for technologies or processes that could further this strategic objective?**
- **Are there considerations that are not mentioned here that any strategy should keep in mind?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**

4.3 Improving Access for DVCs

Strategic Objective: Eliminate the adoption gap for DERs in DVCs by 2030-2035.

The Strategic Objective will take into consideration:

- The need for effective and respectful process in working with disadvantaged and vulnerable communities (DVCs), through:
- Focusing on multifamily housing, the grid edge, and constrained areas where overlap with DVCs is more prominent;
- Active engagement with the community;
- Recognition that communities want a sense of agency over programs;
- Considering the timing mismatch between EPIC projects and community needs and processes;
- Need to work with trusted messengers and researchers with cultural competence;
- Holistic and portfolio approaches to programs;
- Fact that community members may not realize that they are funding EPIC; and
- The need to use the communities' own definitions of "benefits."

The Strategic Objective will achieve a path to market through:

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Success for the Strategic Objective will be measured through:

- Determining whether DER adoption rates in DVCs are, at least, on parity with non-DVC communities;
- Determining whether DVCs are enjoying the benefits of DERs at a level that is at least on parity with non-DVC communities; and
- The reduction in centralization of the electric system.

Targeted Questions for Stakeholders:

- **Is the Strategic Objective appropriately stated? If not, what do you propose?**
- **What paths to widespread market adoption do you see for technologies or processes that could further this strategic objective?**
- **What factors should be considered in determining the focus that the EPIC program puts toward behind-the-meter vs. in-front-of-the-meter DER technologies?**
- **What other barriers do you see to the development of new technologies or processes to address in this objective?**
- **What are possible paths to market?**
- **What are appropriate targets and timelines for the Strategic Objective?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**

4.4 Expediting and Streamlining Interconnection of DERs

Strategic Objective: Expedite and streamline interconnection of DERs to complete XX% of interconnection requests within XX days of application during the time period 2030-2035.

Sub-Objectives that can lead to accomplishing this objective:

- 100% utilization, coordination and control capabilities of new DER resources; and
- 100% visibility into DER value and performance on the grid.

The Strategic Objective will take into consideration:

- Affordability to DER resources and ratepayers (not increasing ratepayer energy burden);
- Safety and cybersecurity;
- Resilience;
- Power quality;
- Manufacturer specifications;
- Interoperability;
- DER control and coordination capabilities;
- Existing resources on the grid (need for updates to the resources and infrastructure); and
- Pace of technology change.

The Strategic Objective will achieve a path to market through:

- Adoption in the CPUC rate cases (with respect to the utility expenses);
- Filing information and adopting mandates in relevant CPUC proceedings;
- Mandating inclusion of a commercialization plan in EPIC funding applications ;
- Future regulatory mandates;
- Refine Integrated Energy Policy Report (IEPR)to treat DERs as supply and not just a load; and
- Manufacturers developing products (DERs, inverters, grid devices) in line with the best industry standards, standards unification.

Success for the Strategic Objective will be measured through:

- Reduction in the number of days of interconnection request processing;
- Reduction in the number of interconnection customer complaints;
- % of DERs interconnected with expedited timelines;
- % of DER utilization by utilities;
- Reduced costs & interconnection timelines for the interconnection customers and utilities; (including reduced gap between estimates vs actual);
- % of time the DER functions are available and perform as expected/predicted;
- Increased visibility into grid balancing events related to DERs and how DERs perform/contribute to handling them;
- Reduction in costs and timelines for utility studies into DER controls, performance and coordination during the interconnection processes;
- Number of projects that have utility verified control and coordination capabilities of DERs; and
- Reduction in the gap between the test value proposition estimates vs actual (for use cases).

Targeted Questions for Stakeholders:

- **What additional paths to widespread market adoption do you see for technologies or processes that could further this strategic objective?**
- **For community-based organizations and consumer advocates - what ratepayer and DVC concerns should be taken into account?**
- **For DER installers and developers and for utilities - what realistic timelines would you suggest for the interconnection timelines and what grouping, typology would you recommend for standardized expedited timelines for specific technologies?**
- **For utilities - what operational and timing concerns should be taken into account?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**

4.5 Support Development of Value of DER framework

Strategic Objective: Support the development of a consensus evidence-based framework to identify the location-, time-, and performance-based value of grid services that is usable by grid operators, accessible by any DER or load, and includes a process to establish baselines, by 2030; and supporting the adoption of DER use cases under the framework that demonstrate benefits exceeding costs by 2032.

The Strategic Objective will take into consideration:

- The current lack of data on the value of grid services;
- A need to be technology-neutral;
- Conflicts with use of distributed energy resources for other purposes;
- Customer preferences, and the need for collection of data on opt-outs in real-world deployment;
- Ensuring adoption in hard-to-reach DVCs and remote parts of the system;
- The need for a process to update data on a regular basis;
- Lack of understanding / data on integration costs and process requirements;
- The costs and risks of underperformance;
- The need to operationalize the use of DERs for grid services at a utility;
- The distinct roles that behavioral, constraint management, and control play in providing value;
- The need to create a feedback loop to system- and statewide planning processes;
- Not all DERs need to be actively managed to provide grid services; and
- Implementation of FERC 2222 goals and coordination with customer programs.

The Strategic Objective will achieve a path to market through:

- Providing data and results into CPUC proceedings on DERs and rate cases;
- Coordination with Vehicle-Grid Integration processes;
- Achieving demonstration and deployment through a staged test-bed process; and
- Implementation of dynamic pricing rates for real-time DER optimization.

Success for the Strategic Objective will be measured through:

- Whether a standard procedure to evaluate DER services, benefits, and baselines has been established;
- A public checklist review of grid services that are valued and accessible to DERs;
- A quantification of the contribution of different market segments to the 7,000 MW flexibility goal;
- Quantification of avoided capacity (and associated cost) of new grid upgrades; and
- Overall tracking: carbon intensity of supply for each load hour, percentage of capacity served by DER capacity.

Targeted Questions for Stakeholders:

- **What decisions need to be made outside of the EPIC program to establish the resulting framework as a formal policy approach of the relevant decision-making bodies?**
- **For community-based organizations and consumer advocates - what ratepayer and DVC concerns should be taken into account?**
- **For utilities - what operational and timing concerns should be taken into account?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**

4.6 Reducing Feeder/Circuit Peaks

Strategic Objective: Reducing ratepayer costs due to grid upgrades by demonstrating capability and best practices to increase the utilization rate of a circuit from X% to Y%, and avoiding/minimizing grid upgrade costs due to peaks at the local level.

The Strategic Objective will take into consideration:

- The current lack of data on the value of grid services;
- The need for granular data at the circuit level;
- Coordination with Calfuse pilots; and
- The need to root this operational capability in the process for investing in the grid.

The Strategic Objective will achieve a path to market through:

- Coordination with long-term planning processes (IEPR, IRP, Resource Adequacy) to provide; visibility into behind-the-meter DERs;
- Deploying through utility processes as an alternative to capacity expansion planning; and
- Demonstration of capability in a staged test bed process.

Success for the Strategic Objective will be measured through:

- Changes in load factor for demonstrations projects;
- Increases in flexible load capacity as a percent of peak power (grid-wide and locally);
- Reduction in DER capacity-limited feeders/circuits;
- Adoption of a planning model to compare leveraging DERs to a grid upgrade;
- Decrease in CAGR; and
- Perception of DVCs of whether they feel well-positioned to participate in and benefit from grid upgrades and additional DER integration activities.

Targeted Questions for Stakeholders:

- **Is this a stand-alone strategic objective, or is this a component of draft objective 4.5 ("Support development of value of DER framework")?**
- **How can you calculate the benefit of such an approach without knowing the un-spent grid upgrade costs?**
- **How could a sandbox-type environment be created to test and evaluate approaches to reach this objective?**
- **Are there considerations that are not mentioned here that any strategy should keep in mind?**
- **For community-based organizations and consumer advocates - what ratepayer and DVC concerns should be taken into account?**
- **For utilities - what operational and timing concerns should be taken into account?**
- **What reporting practices should EPIC mandate to track progress of this strategic objective?**
- **What is the path to market and likely timeline for availability of technologies or products?**

EPIC DRAFT STRATEGIC OBJECTIVES

APPENDIX

As part of the development of Draft Strategic Objectives in the technical working group meetings, participants provided examples of strategies that may help achieve the Strategic Objective. At this time, it is premature to finalize specific strategies to reach the Strategic Objectives, as that will be determined as part of Administrator Investment Plans. However, capturing the discussed strategies can provide helpful context to participants to understand the focus of the discussion.

The following represents a non-exhaustive list of possible strategies identified by stakeholders for each Strategic Objective. Stakeholders need not provide comments, edits, or suggestions on the identified strategies.

DER INTEGRATION

Strategic Objectives	Stakeholder-supplied Example Strategies
4.1 Role of DERs for Grid and Community Resilience	• Isolate DERs during a cybersecurity attack • Community scale microgrids • Plug and play community solutions • Community shared resources • Voltage support • Closed loop solutions for long duration resiliency • Behind the panel battery • Island remote communities
4.2 Maximizing DER Impacts for DVCs	• Scalable demonstrations • EV charging (level 1 + public) and microtransit • Workforce training at grid edge • Community outreach and education around all DER benefits • Technological readiness • Studying advantages and disadvantages of behind-the-meter vs. in-front-of-the-meter DER
4.3 Improving Access for DVCs	• Scalable demonstrations • EV charging (level 1 + public) and microtransit • Community outreach and education around all DER benefits • Working with trusted messengers and researchers with cultural competence • Technological readiness improvements • Microgrids and resilience centers

4.4 Expediting and Streamlining Interconnection of DERs	• Develop tools for utilities to automate interconnection process (to lead to an expedited interconnection process that does not increase ratepayer burdens), including, for example:
	  ○ Tools that will pull existing information, studies and data available from different sources
	  ○ Tools that will allow for simulations to be run by the utility and the applicants to estimate interconnection costs and timelines (including e.g., the hosting capacity information, cost of required upgrades in different scenarios)
	• Perform engineering studies (pre-developed typical studies that are usually performed during the interconnection requests processing) that could be relied on during the interconnection process to reduce costs and reduce the number of studies that need to be performed by the utilities
	• Perform studies of different models of import/export capacity and limits that can expedite interconnection (for example, look at different successful models and best practices utilized in different jurisdictions and countries)

	• Develop standards of communication protocols and object models (including DER, grid devices, and other relevant devices and equipment) • Standardized telemetry data to have better predictability to better understand and trust DER devices behavior/performance on the grid in specific scenarios (to reduce the need to study these devices extensively during interconnection process)
4.5 Support development of Value of DER framework	• Virtual Power Plant aggregation of behind-the-meter DERs to provide grid reliability services and operational flexibility. • Developing a better understanding of customers' and DER behavior and load shapes • Developing consensus-based, technology-neutral baselines for each grid service • Demonstrate zero incident cybersecurity for DERs at the circuit level • Identifying each positive business case for DER services where benefits exceed costs • Develop a dataset for leveraging DER for operations, including data on reliability, load shape, duration, and operating parameters • Application of standards-based control of DER at the circuit level
4.6 Reducing feeder/circuit peaks	• Developing a dataset on granular, circuit-level data • Managing load shape at the circuit level • Developing a transparent, traceable grid services valuation at the circuit level • Developing a value proposition / quantification of values by zip code or other local geography • Deploying distribution transformer monitoring

End Attachment-6